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Exelon Nuclear

RS-02-185

October 23, 2002

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Additional Information Regarding Request for License Amendment Related to Heavy Loads Handling

Reference: Letter from K. R. Jury (Exelon Generation Company, LLC) to U. S. NRC, "Request for License Amendment Related to Heavy Loads Handling," dated October 1, 2002

In the referenced letter, Exelon Generation Company (Exelon), LLC, requested changes to Facility Operating License Nos. DPR-29 and DPR-30, for Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2. The proposed changes would allow Exelon to revise the QCNPS Updated Final Safety Analysis Report (UFSAR) to use the reactor building crane for heavy loads up to a total of 125 tons for removal and re-installation activities for six reactor cavity shield blocks during the upcoming Unit 1 refueling outage, Q1R17. In a teleconference on October 18, 2002, between Mr. L. W. Rossbach and other members of the NRC and Mr. A. R. Haeger and other members of Exelon, the NRC requested additional information regarding this proposed change. The attachment to this letter provides the requested information.

Should you have any questions concerning his letter, please contact Mr. Allan R. Haeger at (630) 657-2807.

Respectfully,

Keith R. Jury

Keith R. Jury
Director - Licensing
Mid-West Regional Operating Group

Attachment

A001

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

STATE OF ILLINOIS	)	
COUNTY OF DUPAGE	)	
IN THE MATTER OF	)	
EXELON GENERATION COMPANY, LLC	)	**Docket Numbers**
QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2	)	**50-254 and 50-265**

SUBJECT: Additional Information Regarding Request for License Amendment Related to Heavy Loads Handling

AFFIDAVIT

I affirm that the content of this transmittal is true and correct to the best of my knowledge, information, and belief.

Keith R. Jury
Director - Licensing
Mid-West Regional Operating Group

Subscribed and sworn to before me, a Notary Public in and for the State above named, this 22nd day of October, 2002.

Anese L. Grigsby
Notary Public

OFFICIAL SEAL
ANESE L. GRIGSBY
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 3-13-2005

Attachment
Additional Information Regarding Request for License Amendment
Related to Heavy Loads Handling

Question

In reviewing the amendment request and previously docketed information on heavy load handling at Quad Cities, the staff has identified a concern with regard to safe load paths. While allowing a one-time reduction in engineering design margin for the load lift is straight-forward, safe load paths provide a measure of defense-in-depth for the movement of heavy loads over adjacent operating units.

Previously docketed information (letter dated May 4, 1982) defines safe load paths for the reactor vessel head, the drywell head, and the dryer/separator equipment, which are located entirely on the respective unit's side of the reactor building. However, the amendment request describes that a heavier component (the reactor cavity shield blocks) are being moved over a unit in the process of shutting down and the adjacent operating unit. Without safe load paths, defense-in-depth is not maintained because a single load drop may have the potential to initiate an event, cause failure of mitigating equipment, and breech containment integrity. Since the benefit from movement of the shield plugs over operating units is essentially an economic benefit, the staff needs to understand how safe load paths have been established consistent with the Quad Cities licensing basis to continue with the review.

Response

Quad Cities Nuclear Power Station (QCNPS) did not define a specific safe load path for the movement of the reactor cavity shield blocks as part of the responses to Phase I of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." This was discussed in Reference 1 and reviewed by the NRC in Reference 2. General practices incorporated into QCNPS procedures as a result of NUREG-0612 ensure that the intent of the requirement for safe load paths is met. Heavy load heights are maintained as low as practical. Movement of heavy loads over the spent fuel pool and open reactor cavity is prohibited. Additionally, the radius of the circular reactor cavity shield blocks is approximately 21 feet and this ensures that these loads remain over reactor building structural members supporting the refueling floor during movement.

In addition, as noted in Reference 3, QCNPS will apply the results of a load drop analysis prepared for Dresden Nuclear Power Station (DNPS) to support a similar amendment request (Reference 4). The results of the load drop analysis will be applied to the movement of the reactor cavity shield blocks during the period of time requested in Reference 3 to ensure that any potential load drop will not adversely affect safety-related equipment. The DNPS analysis selected controlling elements to investigate the potential impact from a load drop. A slab/beam combination, a wall, and a concrete column were investigated in detail. A comparison was performed between the subject concrete elements for the operating unit at DNPS and the same elements for the refueling floor of the operating unit at QCNPS to validate applicability of the DNPS results for QCNPS. The concrete elements (slab, wall, beams) along the travel path at QCNPS are at least equal in size, greater in compressive strength, and equal in tensile strength of the reinforcement when compared to the DNPS elements. The slab span of a typical bay is the same at DNPS and QCNPS. Based on the similarities of the refueling floor structural concrete elements between DNPS and QCNPS, the DNPS load drop analysis results provide added assurance that no adverse consequences will result from a potential drop of the reactor cavity shield blocks at QCNPS.

Attachment
Additional Information Regarding Request for License Amendment
Related to Heavy Loads Handling

References

1. Letter from E. D. Swartz (Commonwealth Edison Company) to U. S. NRC, "Dresden Station Units 2 and 3, Quad Cities Station Units 1 and 2, Control of Heavy Loads, NUREG-0612," dated May 4, 1982

2. Letter from U. S. NRC to D. L. Farrar (Commonwealth Edison Company), "Control of Heavy Loads – Phase I," dated June 27, 1983

3. Letter from K. R. Jury (Exelon Generation Company, LLC) to U. S. NRC, "Request for License Amendment Related to Heavy Loads Handling," dated October 1, 2002

4. Letter from K. R. Jury (Exelon Generation Company, LLC) to U. S. NRC, "Request for License Amendment Related to Heavy Loads Handling," dated September 26, 2002